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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,324	10/27/2003	Brian L. Ganz		4867

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EXAMINER

SETH, MANAV

ART UNIT PAPER NUMBER

2625

DATE MAILED: 09/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/695,324	<b>Applicant(s)</b> GANZ ET AL.	
	<b>Examiner</b> Manav Seth	<b>Art Unit</b> 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. The amendment received on May 31, 2005 has been entered in full.
2. Applicant's amendment to the claims has been entered and based on the amendments claim objections on the respective claims have been withdrawn.
3. Terminal disclaimer filed on May 31, 2005 by the applicant in view of double patenting has been approved and therefore double patenting rejection has been withdrawn.
4. Applicant's amendments to the claims as presented in the amendment filed have been fully considered but are moot in view of new ground(s) of rejection(s).

### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 9-11, 14, 15, 19-21, 25-27 and 33-35 are rejected under 35 U.S.C. 103(a) as being anticipated under Reich et al. (hereinafter Reich), (U.S. 4,199,013) and further in view of Coulter et al., U.S. Patent No. 4,609,017.

**Regarding Claim 1**, Reich discloses an automated storage and comprising:  
retrieval device for trays holding subject matter, comprising:

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A) a storage rack for vertically storing a plurality of trays (Figure 4, stored Cassettes 12 containing Tubes 10 and Specimen Cups 11, which are stored on stage 13; Column 2, Lines 67-68, Column 3, Lines 1-4). Reich shows only horizontal storage of each tray.

B) at least one automated machine (Figure 3, Bracket Assembly 33 and related accessories; Column 3, Lines 22-41) and also making the whole machine combined with the gantry as a automated machine,

C) a storage gantry for vertical and horizontal movement of said plurality of trays between said storage rack, and said at least one automated machine. Reich shows a horizontal platform (stage 13) on which trays are stored on horizontal platform and a conveying system 20 (gantry) that moves the trays in a horizontal movement (Figure 4, Stage 13, Track 20, movements in x directions 25 and 26, and y directions 23 and 24; Column 3, Lines 5-21),

D) at least one computer system programmed to control said storage gantry (Figure 3, Program Panel 160; Figure 14, Curve A; Column 10, Lines 13-18, Column 10, Lines 32-35) .

Reich does not teach a storage rack for **vertically storing** a plurality of trays and further does not teach a storage gantry for **vertical and horizontal movement of said plurality of trays** between said storage rack and said at least one automated machine. Gantry as well known is used to move physical objects from one place to another under the control of a automation and the same is done by the conveyor of Reich. Examiner agrees to applicant's argument's, as recited in 2<sup>nd</sup> paragraph of amendment filed, that Reich discloses a horizontal storage which is not nearly as effective as vertical storage when storing a large plurality of trays and the amount of horizontal space is quickly depleted when items are not

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stored vertically but are placed on a horizontal platform and also, further Reich's invention would require a person/technician to load the horizontal space (conveyor) manually with said plurality of trays. Therefore, keeping in view all the problems discussed before, examiner cites Coulter. Coulter discloses a method and apparatus for transporting carriers of sealed sample tubes in the trays as in figure 2. Coulter discloses "a plurality of sealed blood sample tubes are housed in a rack and a plurality of these racks are vertically stacked, with the sample tubes lying horizontally. The racks are successively deposited onto a horizontal conveyer belt which is housed in and moves longitudinally on a table ... as a rack is stepped from the stack to a sample aspiration station and or thereat" (Abstract). Coulter further discloses **"The sealed sample tubes are mounted in racks which are stacked vertically above an input elevator. The racks are stripped one at a time from the bottom of the stack and lowered by the elevator onto a combined conveyor belt and tilt table. The conveyor advances a rack until a first of its retained sample tubes is aligned with the aspiration station having a seal piercing sample probe"** (col. 4, lines 29-36). Coulter further shows a vertical and horizontal movement of plurality of trays (racks) between the input storage rack and the aspiration (at least one automated machine) station with **use of elevator 20, platform 18 and belt 32** (combined forming a storage gantry to move physical object under program control) and further pushing the trays back to vertical storage rack from the aspiration station (Figure 2; col. 5, lines 60-68; col. 7, lines 56-68 through col. 8, lines 1-30). Therefore, it would have been obvious for one of ordinary skill in the art at the time of invention was made to modify Reich's invention in view of Coulter because Coulter clearly discloses a system which recites same components as Reich which is used in aspiration, the only difference between Reich and Coulter is that rather than storing trays (or

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racks) on horizontal plane, Reich's invention provides additional step of storing trays (or racks) in vertical storage rack thus saving the space as discussed above and Reich further provides the additional feature where the trays under the program control automatically are transferred between the storage rack and automated machine (aspiration station) with minimum technician interaction at significantly spaced times, and further providing vertical and horizontal movement of trays.

**Regarding Claim 2,** Reich further discloses the automated storage and retrieval device as in Claim 1 further comprising an access device, wherein said storage gantry moves said plurality of trays between said storage rack and said access device (Figures 2, 3 and 14; Column 3, Lines 5-21; Column 10, Lines 13-35).

**Regarding Claim 3,** Reich further discloses the automated storage and retrieval device as in Claim 1, wherein said at least one automated machine is an inspection device (Column 1, Lines 49-53; Column 2, Lines 44-66).

**Regarding Claim 9,** Reich further discloses the automated storage and retrieval device as in Claim 1, wherein said at least one automated machine is an automated micro-well plate filling machine (Figure 4, Cassettes 12 containing Tubes 10 and Specimen Cups 11; Column 1, Lines 7-14; Column 2, Lines 30-43).

**Regarding Claim 10,** Reich further discloses the automated storage and retrieval device as in Claim 1, wherein said at east one automated machine comprises:

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E) a micro-well plate filling assembly, comprising:

1. an indexing device (Figures 3, 4 and 14; Column 3, Lines 5-21; Column 10, Lines 13-54), and
2. a fill mechanism in communication with a media source and positioned to insert portions of said media into the empty micro-well plates (Figures 3-5; Column 2, Lines 67-68, Column 3, Lines 1-52), and

F) an automatic control unit programmed to cause said indexing device to move empty micro-well plates adjacent to said fill mechanism, and to cause said fill mechanism to inject media from said media source into wells in the micro-well plates (Figure 3, Program Panel 160; Figure 14, Curve A; Column 10, Lines 13-18, Column 10, Lines 32-35).

**Regarding Claim 11**, Reich further discloses the automated storage and retrieval device as in Claim 1, wherein said subject matter is solution inside at least one micro-well plate (Column 2, Lines 44-50; Column 12, Lines 37-52).

**With regards to Claims 14 and 25**, arguments analogous to those presented for Claim 1 are applicable to Claims 14 and 25.

**With regards to Claims 15 and 26**, arguments analogous to those presented for Claim 2 are applicable to Claims 15 and 26.

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With regards to Claim 27, arguments analogous to those presented for Claim 3 are applicable to Claim 27.

With regards to Claims 19 and 33, arguments analogous to those presented for Claim 9 are applicable to Claims 19 and 33.

With regards to Claims 20 and 34, arguments analogous to those presented for Claim 10 are applicable to Claims 20 and 34.

With regards to Claims 21 and 35, arguments analogous to those presented for Claim 11 are applicable to Claims 21 and 35.

7. Claims 4, 12, 13, 16, 22, 23, 28, 36 and 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reich et al. (hereinafter Reich), (U.S. 4,199,013) further in view of Coulter et al., U.S. Patent No. 4,609,017 and further in view of Rubin et al. (hereinafter Reich), (Minimal Intervention Robotic Protein Crystallization).

Regarding Claim 4, Reich further discloses the automated storage and retrieval device as in Claim 3, wherein said inspection device is a device for inspecting and classifying a plurality of samples for microchemical assays including separation of liquid and solid phases of the samples (Column 1, Lines 49-53; Column 2, Lines 44-66).

Reich and Coulter does not explicitly disclose inspecting and classifying a plurality of microscopic crystals.



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Rubin discloses a protein crystallization robotic system for inspecting and classifying a plurality of microscopic crystals (Figures 2, 4 and 5; Pages 158-160, Section 3).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to further modify, modified invention of Reich in view of Coulter as of claim 1, in accordance with the teachings of Rubin to inspect and classify a plurality of microscopic crystals because it will expand the versatility of Reich's teachings of separating liquid and solid phases of the samples to include inspecting, handling, filling and classifying microscopic crystals.

**With regards to Claim 16**, arguments analogous to those presented for Claims 3 and 4 are applicable to Claim 16.

**With regards to Claim 28**, arguments analogous to those presented for Claim 4 are applicable to Claim 28.

**Regarding Claim 12**, Rubin discloses the automated storage and retrieval device as in Claim 11, wherein said at least one micro-well plate comprises a bar code, wherein said automated storage and retrieval device further comprises at least one bar code reader in communication with said at least one computer system (Page 159, Column 1).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify combined Reich's and Coulter's invention in accordance with the teachings of Rubin to include a bar code reader in communication with said at least one

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computer system because it is a well known accessory routinely implemented for identifying components intended to be inspected or classified.

**Regarding Claim 13**, Reich discloses the automated storage and retrieval device as in Claim 1, wherein said plurality of trays holds at least one micro-well plate, wherein said storage gantry comprises at least one gripper, wherein said plurality of trays comprises:

E) at least one cut-down access area for said at least one gripper ,

F) a corner flat for tray orientation (Figure 4), and

G) a plurality of tapered guide pillars for guiding said at least one micro-well plate into said plurality of trays (Figures 1-4; Column 2, Lines 30-43).

Reich and Coulter does not disclose a robotic gripper.

Utilizing a robotic gripper is well known in liquid sample delivering and handling systems as taught by Rubin (Figure 2).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Reich's invention in accordance with the teachings of Rubin to include a robotic gripper in the automated storage and retrieval device because it is a well known accessory routinely implemented for handling components intended to be inspected or classified.

**With regards to Claims 22 and 36**, arguments analogous to those presented for Claim 12 are applicable to Claims 22 and 36.

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With regards to Claims 38-40, arguments analogous to those presented for Claims 1-4 are applicable to Claims 38-40.

With regards to Claims 23 and 37, arguments analogous to those presented for Claim 13 are applicable to Claims 23 and 37.

8. Claims 7 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reich et al., (hereinafter Reich), (U.S. 4,199,013) further in view of Coulter et al., U.S. Patent No. 4,609,017, and further in view of Jurisica et al., (hereinafter Jurisica), (Intelligent Decision Support for Protein Crystal Growth).

Regarding claim 7, arguments analogous to those presented for Claims 1 and 10 are applicable to Claim 7. Reich further discloses a computerized program comprising:

F) an indexing device for receiving said plurality of trays and for placing said subject matter in a specified position for digital signal processing (Figures 3-5; Column 2, Lines 67-68, Column 3, Lines 1-52), and

G) at least one control computer programmed to control said indexing device (Program panel 160; Figure 14, Curve A; Column 10, Lines 13-18, Column 10, Lines 32-35), wherein said at least one control computer is programmed to receive digital signals from movement of said subject matter (Column 9, Lines 28-43).

However, Reich and Coulter does not disclose the inspection device comprises:

at least one camera, and the control computer programmed to receive images of the subject matter.

Jurisica discloses protein crystal growth system comprising:

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E) at least one camera (Page 396, Column 2, second paragraph),

F) an indexing device for receiving said plurality of trays and for placing said subject matter in camera view of said at least one camera (Page 396, Column 2, second paragraph), and

G) at least one control computer programmed to control said indexing device and said at least one camera, wherein said at least one control computer is programmed to receive from said at least one camera images of said subject matter (Figures 1 and 3-5; Page 398, Column 2 through Page 402, Column 1).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify combined Reich's and Coulter's invention in accordance with the teachings of Jurisica to acquire images of the subject matter because it will provide supplementary information of the subject matter for further enhancing the operation of the automated storage and retrieval system.

**With regards to Claim 31**, arguments analogous to those presented for Claim 7 are applicable to Claim 31.

9. Claims 5, 6, 8, 17, 18, 24, 29, 30 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reich et al., (hereinafter Reich), (U.S. 4,199,013) further in view of Coulter et al., U.S. Patent No. 4,609,017, and further in view of Rubin et al. (hereinafter Reich), (Minimal Intervention Robotic Protein Crystallization) and further in view of Jurisica et al., (hereinafter Jurisica), (Intelligent Decision Support for Protein Crystal Growth).

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With regards to claim 5, arguments analogous to those presented for Claims 1-4 and 7 are applicable to Claim 5.

Regarding Claim 6, Jurisica further disclose the automated storage and retrieval device as in Claim 5, wherein said at least one control computer automatically classifies said plurality of microscopic crystals after receiving said images (Page 402).

Regarding Claim 8, it is a well known methodology to utilize LED light source for illuminating said subject matter (Official Notice).

With regards to Claim 17, arguments analogous to those presented for Claims 5 and 6 are applicable to Claim 17.

With regards to Claims 24 and 29, arguments analogous to those presented for Claim 5 are applicable to Claims 24 and 29.

With regards to Claims 18 and 30, arguments analogous to those presented for Claim 6 are applicable to Claims 18 and 30.

With regards to Claim 32, arguments analogous to those presented for Claim 8 are applicable to Claim 32.

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With regards to Claim 41, arguments analogous to those presented for Claim 5 are applicable to Claim 41.

### *Conclusion*

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Stolzer, U.S. Patent No. 3,977,542, discloses a storage system.
- Overbeck et al., U.S. Patent No. 6,722,395, discloses depositing fluid specimens on substrates, resulting ordered arrays, techniques for analysis of deposited arrays.
- Muka, U.S. Patent No. 6,079,927, discloses automated wafer buffer for use with wafer processing equipment.
- Watts et al., U.S. Patent No. 5,656,942, discloses a prober and tester with contact interface for ICs containing wafer held docked in a vertical plane.

Applicant's amendments to the claims necessitated the new ground(s) of rejection presented in this office action. **Accordingly, THIS ACTION IS MADE FINAL.** See MPEP §706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened

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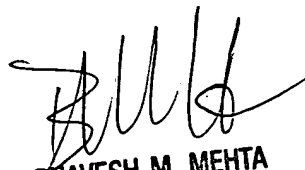
statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manav Seth whose telephone number is (571) 272-7456. The examiner can normally be reached on Monday to Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manav Seth  
Art Unit 2625  
September 19, 2005



**BHAVESH M. MEHTA**  
**SUPERVISORY PATENT EXAMINER**  
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